

REMARKS

Reconsideration of the present application is respectfully requested. Claims 22-28 and 31-36 are pending.

Claims 22, 23, 25, 26 and 31-33 have been amended. Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice. Support for the amendments resides throughout the specification and in the claims as originally filed. No new matter has been added by way of amendment to the claims.

It is respectfully requested that the amendments be entered.

PRIORITY

The Examiner is respectfully requested to withdraw the change in the first line of the specification claiming priority to "parent application 09/607460 (as indicated in the transmittal papers) and also to indicate that the parent application is abandoned" as stated by the Examiner. The claim to priority was correct in the transmittal papers as well as in the specification as filed. For the Examiner's convenience, a copy of the transmittal papers to this effect is attached to this paper. Further, the parent application was not abandoned at the time the present application was filed.

The Examiner further states: "Priority for the instantly claimed invention is not granted to the parent application because the parent application does not provide adequate support under 112 1st paragraph."

It is noted that the withholding of grant of priority to the parent application is not within the Examiner's purview. The MPEP states: "Unless the filing date of the earlier nonprovisional application is actually needed, for example, in the case of an interference or to overcome a reference, there is no need for the Office to make a determination as to whether the requirement of 35 USC 120, that the earlier nonprovisional application discloses the invention of the second application in the manner provided by the first paragraph of 35 USC 112, is met and whether a substantial portion of all of the earlier nonprovisional application is repeated in the second application in a continuation-in-part situation. *Accordingly, an alleged*

continuation-in-part application should be permitted to claim the benefit of the filing date of an earlier application if the alleged continuation-in-part application complies with the ... formal requirements of 35 USC 120...." MPEP 201.08, paragraph 6.

INFORMATION DISCLOSURE STATEMENT

The items cited by the Examiner have been re-submitted in a new form PTO-1449 stating the name of the database whose accession numbers are represented.

Rejections under 35 U.S.C. §112

Rejections under 35 USC §112, second paragraph

Claims 22-28 and 31-36 are rejected under §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states: "Claims 22-39 are rejected over the recitation of 'phytyl/prenyltransferase protein' and 'phytyl/prenyltransferase polynucleotide'. The specification does not provide a clear definition which identifies these proteins, and thus it is not possible to determine the meets [sic] and bounds of these claims".

Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice.

Page 4, lines 5-8, of the specification reads: "The present polypeptides catalyze the condensation of homogentisic acid with phytyldiphosphate or geranylgeranyl pyrophosphate to produce the first intermediates in tocopherol or tocotrienol synthesis, respectively." It is believed one of skill in the art would be properly notified by the above language of the metes and bounds of claims 22-39.

However, to expedite prosecution, claims 22, 23, 25, 26, and 31-33 have been amended to either replace "phytyl/prenyltransferase" with "tocopherol" or to omit "phytyl/prenyltransferase". Claim 24 depends from claim 22 and incorporates the limitations of that claim. Support for the amendment can be found in the Examples section titled: "Expression of Maize Phytyl/prenyltransferase in Soybean Somatic Embryos" on pages 55-61 of the specification. The elected sequence(s) were used

to transform soybean somatic embryos which, when assayed, modulated the level of tocopherol in the plant. It is believed the amendments obviate the rejection.

Rejections under 35 USC §112, first paragraph

Claims 22, 24, 25, 26, 27, 31, 33, 34, and 36 are rejected under 35 USC §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner states: "Claims 22, 24, and 25, and 26, generically recite methods for modulating the level of phytyl/prenyltransferase protein in a plant wherein the methods utilize a phytyl/prenyltransferase polynucleotide... These claims do not recite any structural characteristics of the recited phytylprenyltransferase proteins and polynucleotides. Claims 31, 33, 34, and 36 are directed to methods for modulating the level of a phytyl/prenyltransferase protein in a plant... The specification provides no guidance as to how or where the disclosed polynucleotide can be modified yet still maintain the functionality required for the instant methods. The claims also fail to recite other relevant identifying characteristics (physical and/or chemical and/or functional characteristics coupled with a known or disclosed correlation between function and structure) sufficient to describe the claimed invention... Therefore, there is a lack of guidance or teaching regarding structure and function because there is only a single example provided in the specification and because there is no guidance found in the specification."

Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice. Claims 22, 25, 26 and 31-33 have been amended to either replace "phytyl/prenyltransferase" with "tocopherol" or to omit the term "phytyl/prenyltransferase" in a dependent claim. Claim 24 depends from claim 22 and incorporates the limitations of that claim.

As stated previously, the application discloses structure via a DNA sequence (SEQ ID NO:3) of an isolated polynucleotide whose overexpression increases the amount of tocopherol relative to oil in a plant tissue (see the specification, Examples page 59, lines 26-29).

The application discloses the presently claimed function correlated with this structure in the Examples section titled: "Expression of Maize Phytyl/prenyltransferase in Soybean Somatic Embryos" on pages 55-61 of the specification. The elected sequence(s) were used to transform soybean somatic embryos which, when assayed, modulated the level of tocopherol in the plant.

Physical and chemical properties associated with the sequences utilized in the methods are defined by hybridization conditions to the disclosed sequence beginning on page 12, line 30 of the specification and structural variants are described and defined in the specification on page 9, lines 7-21 such that the skilled artisan could readily visualize that the applicant was in possession of the invention claimed.

The Examiner cites *Fiers v. Sugano* in support of the rejection. Applicant reiterates the Examiner has improperly applied this case to the present application. The decision in *Fiers* turned on the conclusion that the patent by Fiers lacked a complete DNA sequence at the time of Sugano's filing which included a complete DNA sequence and a method for isolating that DNA. Note that the present application contains both a complete DNA sequence and methods for isolating that sequence (the specification beginning on page 42).

The Examiner states: "In the application at the time of filing, there is no record or description which would demonstrate written description ... of phytyl/prenyl-transferase polynucleotide which has nucleotides modified by addition, insertion, deletion substitution, or inversion with respect to SEQ ID NO:3 or SEQ ID NO:9 but retaining correlative function in the claimed methods".

Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice. Claims 22, 25, 26 and 31-33 have been amended to either replace

"phytyl/prenyltransferase" with "tocopherol" or to omit the term "phytyl/prenyltransferase" in a dependent claim. Claim 24 depends from claim 22 and incorporates the limitations of that claim.

Examiner's attention is drawn to the specification, page 9, lines 7-13 which recites: "Variants included in the invention may contain individual substitutions, deletions or additions to the nucleic acid or polypeptide sequences. Such changes will alter, add or delete a single amino acid or a small percentage of amino acids in the encoded sequence". Clearly there was conception at the time of filing for modified functional polynucleotides.

The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "*reasonably* conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." (MPEP 2163.02).

By disclosing the foregoing identifying characteristics, and by the amendments to the claims, it is believed that one of skill in the art would reasonably conclude that the applicant was in possession of the claimed invention. Applicant submits that the written description requirement for claims 22, 24, 25, 26 and 31-33, is satisfied and request withdrawal of the outstanding rejection.

Claims 22-28 and 31-36 are rejected under 35 USC §112, first paragraph, because the specification, while being enabling for (A) methods for increasing the level of polypeptides encoded by instant SEQ ID NO:3 or instant SEQ ID NO:9 in a plant, (B) methods for increasing the level of and tocopherols in a plant wherein either (A) or (B) include a step of transforming the plant with instant SEQ ID NO:3 or SEQ ID NO:9 in the sense orientation, does not reasonably provided enablement for methods which utilize other polynucleotides or methods which utilize SEQ ID NO:3 or SEQ ID NO:9 in the anti-sense orientation. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims."

Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice. Claim 22 has been amended to omit reference to antisense orientation. It is believed the amendments obviate the rejection.

The Examiner further states: "...it is noted that the instant claims encompass methods which utilize nucleic acids that are related to SEQ ID NO:3 based on hybridization or homology. However, Applicant provides no guidance for the regions of the disclosed SEQ ID NO:3 which are essential or sufficient to modify tocopherol production in transgenic plants,... In the absence of such guidance, undue trial and error experimentation would be required to screen the vast number of different polynucleotides with 70% homology to or that would hybridize to SEQ ID NO:3 to identify those which encode an active phytyl/prenyltransferase, especially in light of the fact that it is not clear from the specification that SEQ ID NO:3 is a phytyl/prenyltransferase or how to identify such a molecule."

Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice. Claims 22, 25, 26 and 31-33 have been amended to either replace "phytyl/prenyltransferase" with "tocopherol" or to omit the term "phytyl/prenyltransferase" in a dependent claim. Claim 24 depends from claim 22 and incorporates the limitations of that claim. It is believed the amendments obviate the rejection.

The Examiner concludes: "It is note [sic] that each of the claims recites phytyl/prenyltransferase proteins and nucleic acids. However, it is unclear from the specification precisely what the limiting characteristics of such a protein are. The instant specification has demonstrated that SEQ ID NO:3 and SEQ ID NO: 9 play a role in tocopherol regulation in plants, but they have not demonstrated that either of these is a phytyl/prenyltransferase, per se, thus, even if claim 28, for example, were limited to recite that SEQ ID NO: 3 is in the sense orientation, it would still be problematic in light of the recitation that SEQ ID NO: 3 is a phytyl/prenyltransferase polynucleotide, since no particular activity has been demonstrated for this polynucleotide."

Claims 27, 28, 34, 35, and 36 have been cancelled without prejudice. Claims 22, 25, 26 and 31-33 have been amended to either replace "phytyl/prenyltransferase" with "tocopherol" or to omit the term "phytyl/prenyltransferase" in a dependent claim. Claim 24 depends from claim 22 and incorporates the limitations of that claim. Claim 22 has been amended to omit reference to antisense orientation. It is believed the amendments obviate the rejection.

Rejections under 35 USC §102

Claims 22, 24, and 25 are rejected under 35 USC §102(b) as being anticipated by *Ausich et al.*

The Examiner states: "*Ausich et al.* teach a method for modulating the level of geranylgeranyl pyrophosphate (GGPP) synthase (which is a phytyl/prenyltransferase protein) in a plant...."

Ausich et al. do not teach a method for modulating the level of tocopherol in a plant.

Claims 22 and 25 have been amended to either replace "phytyl/prenyltransferase" with "tocopherol" or to omit the term "phytyl/prenyltransferase" in a dependent claim. Claim 24 depends from claim 22 and incorporates the limitations of that claim.

The MPEP states: "... for anticipation under 35 USC §102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present" (MPEP 706.02).

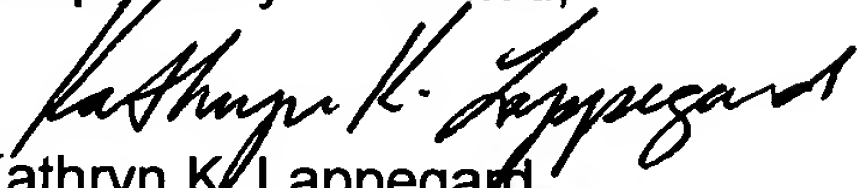
The reference cited by the Examiner does not teach modulation of tocopherol as claimed in the present invention and thus does not anticipate. It is respectfully requested that the rejections under 35 USC §102 be withdrawn.

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CONCLUSION

On the basis of the above amendments and remarks, reconsideration of the application and its allowance are respectfully requested.

Respectfully submitted,


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